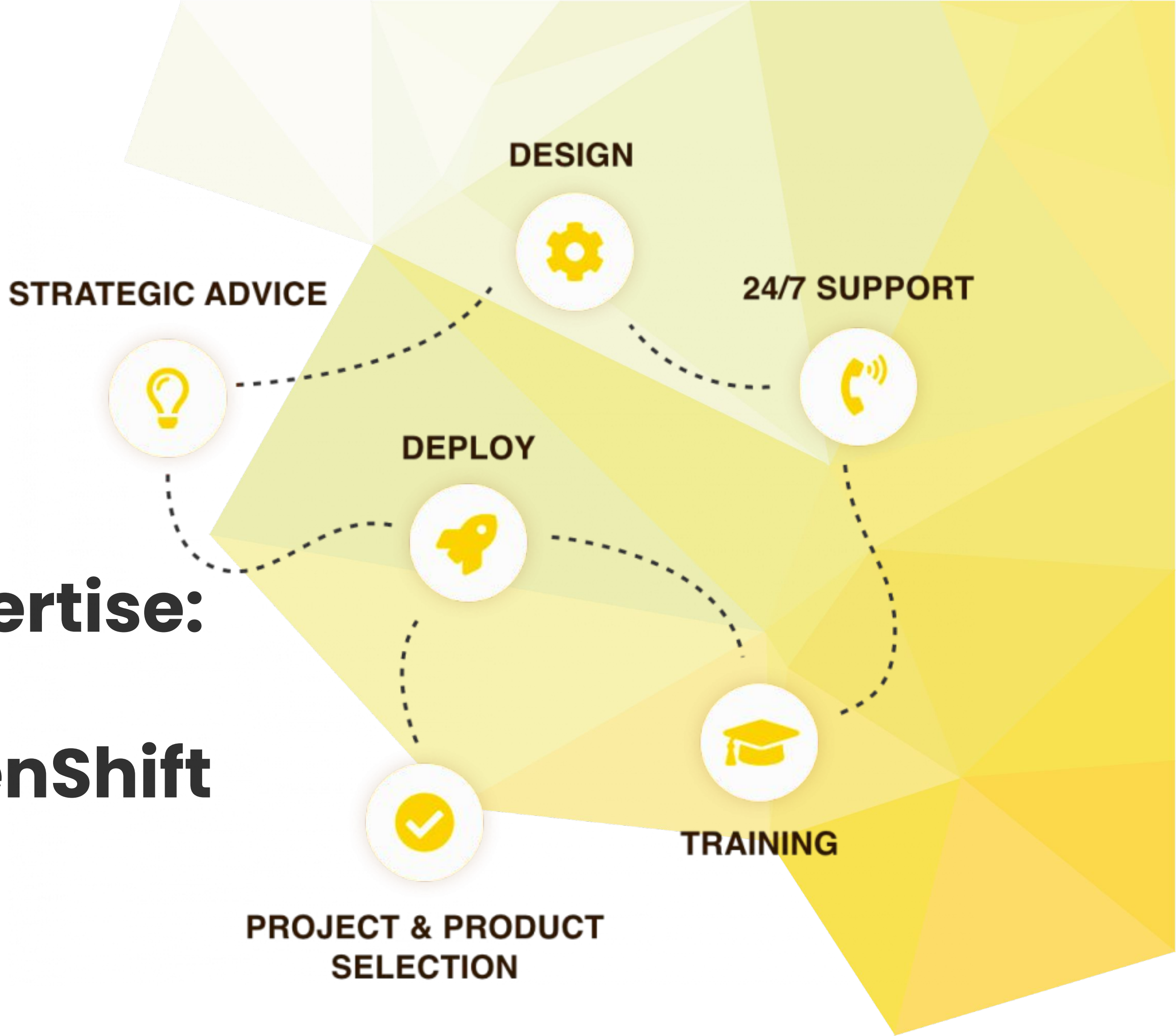
kangaroot

Linux & Open Source Solutions

Meeting Urgency with Expertise: Optimizing 3d party Vendor Containers for OpenShift



Setting the stage

Openshift

Orchestration of containers on top of k8s

Yes…

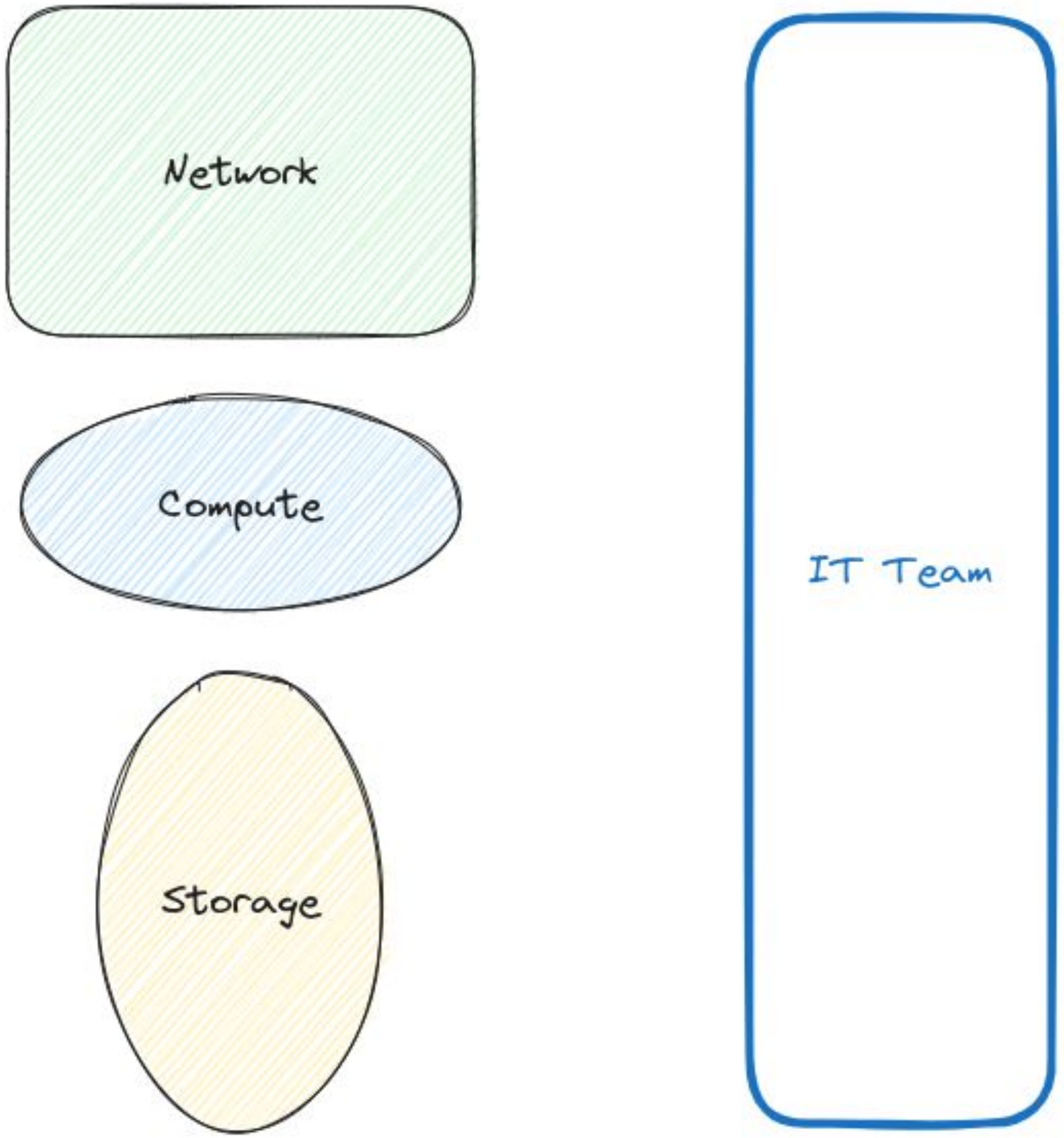
but how did we get there

and why is that important?

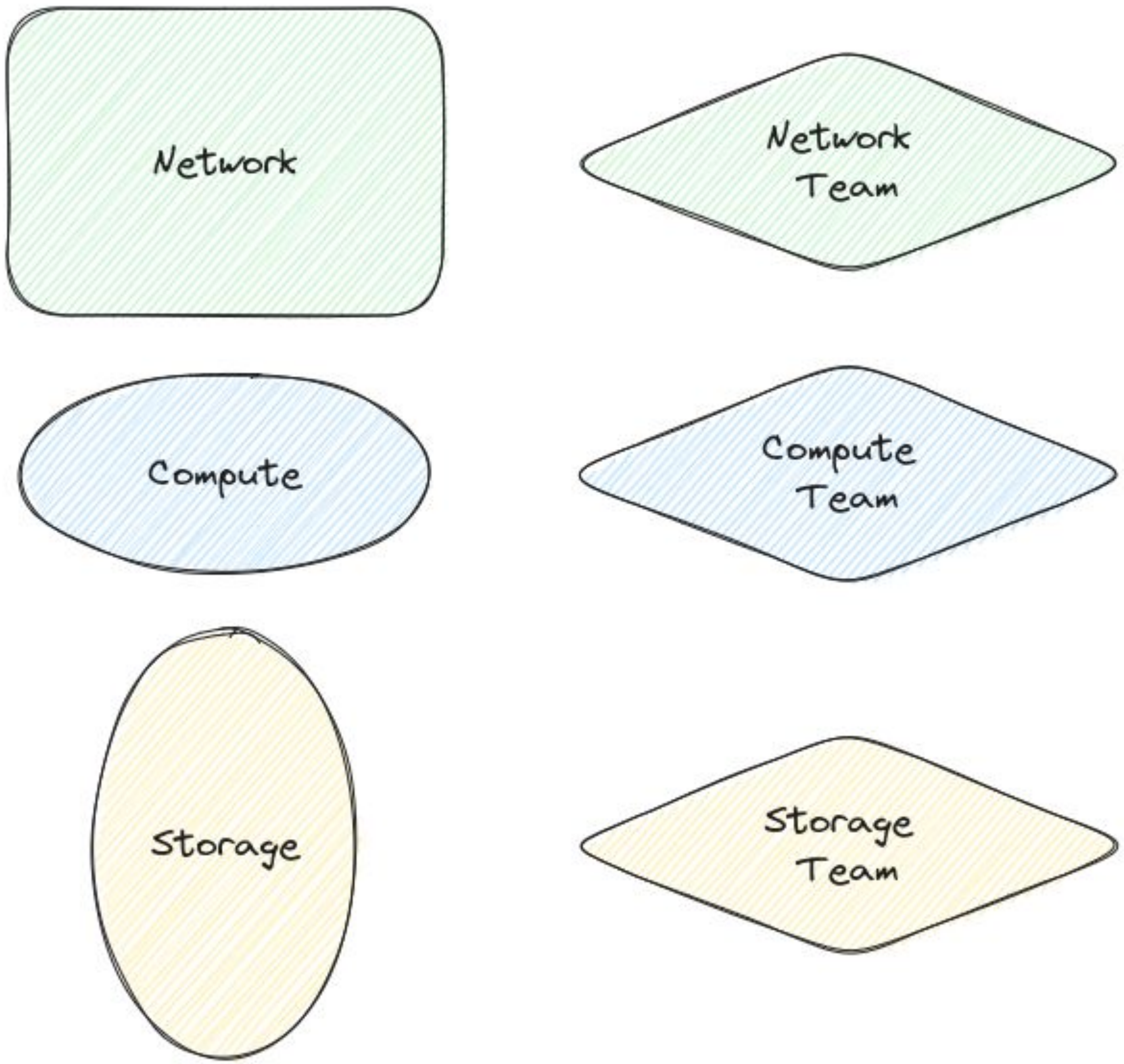
Image by Freepic: https://www.freepik.com/free-vector/hand-drawn-head-exploding-cartoon-illustration_69114507.htm

How it began

Basic enterprise setup



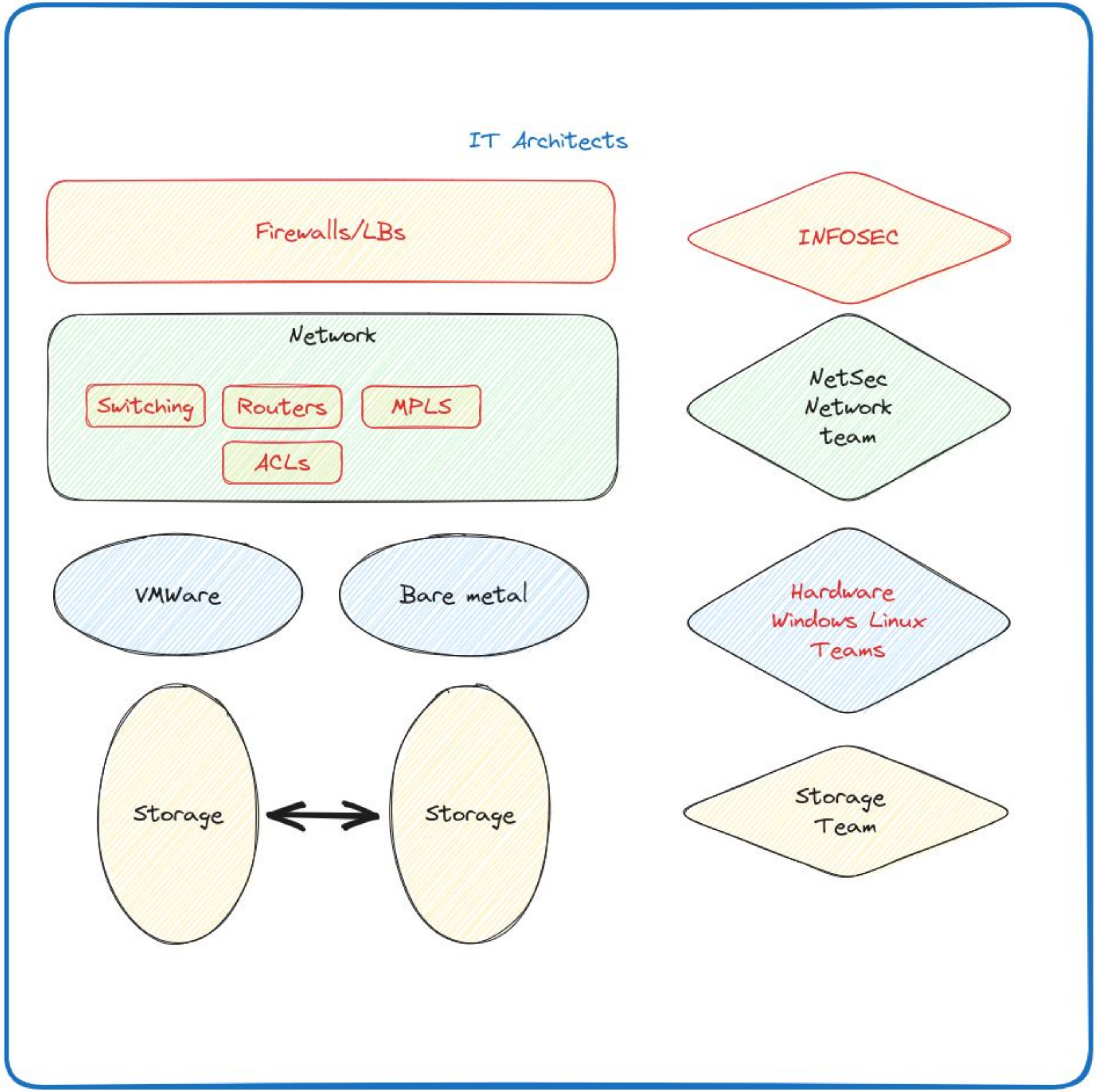
How it grew



Separated responsibilities
New competence centers

Where we are

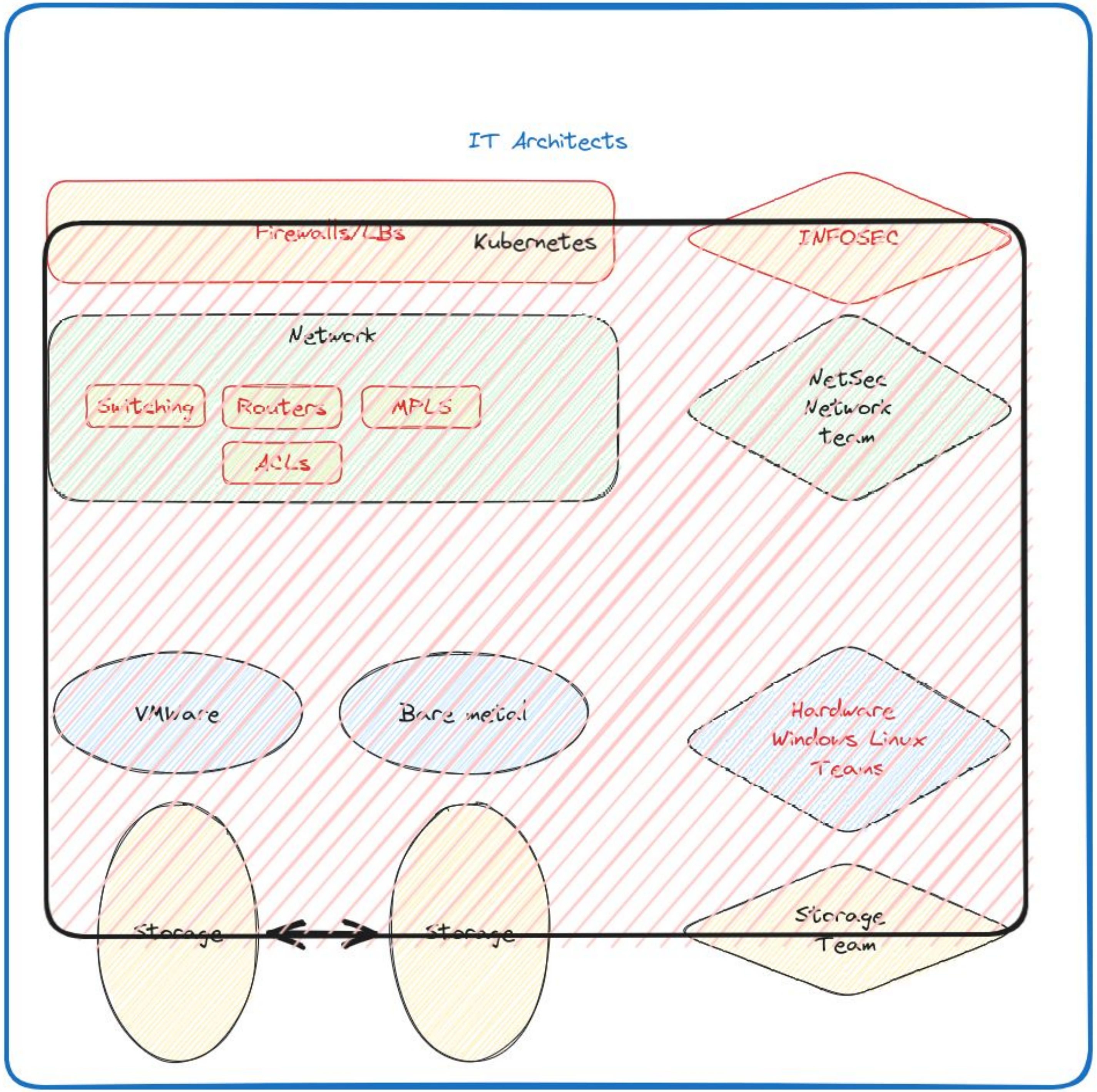
Looks familiar?
6-9 competences



Experts in Linux & Open Source Solutions

Enter Kubernetes

Enter K8s team

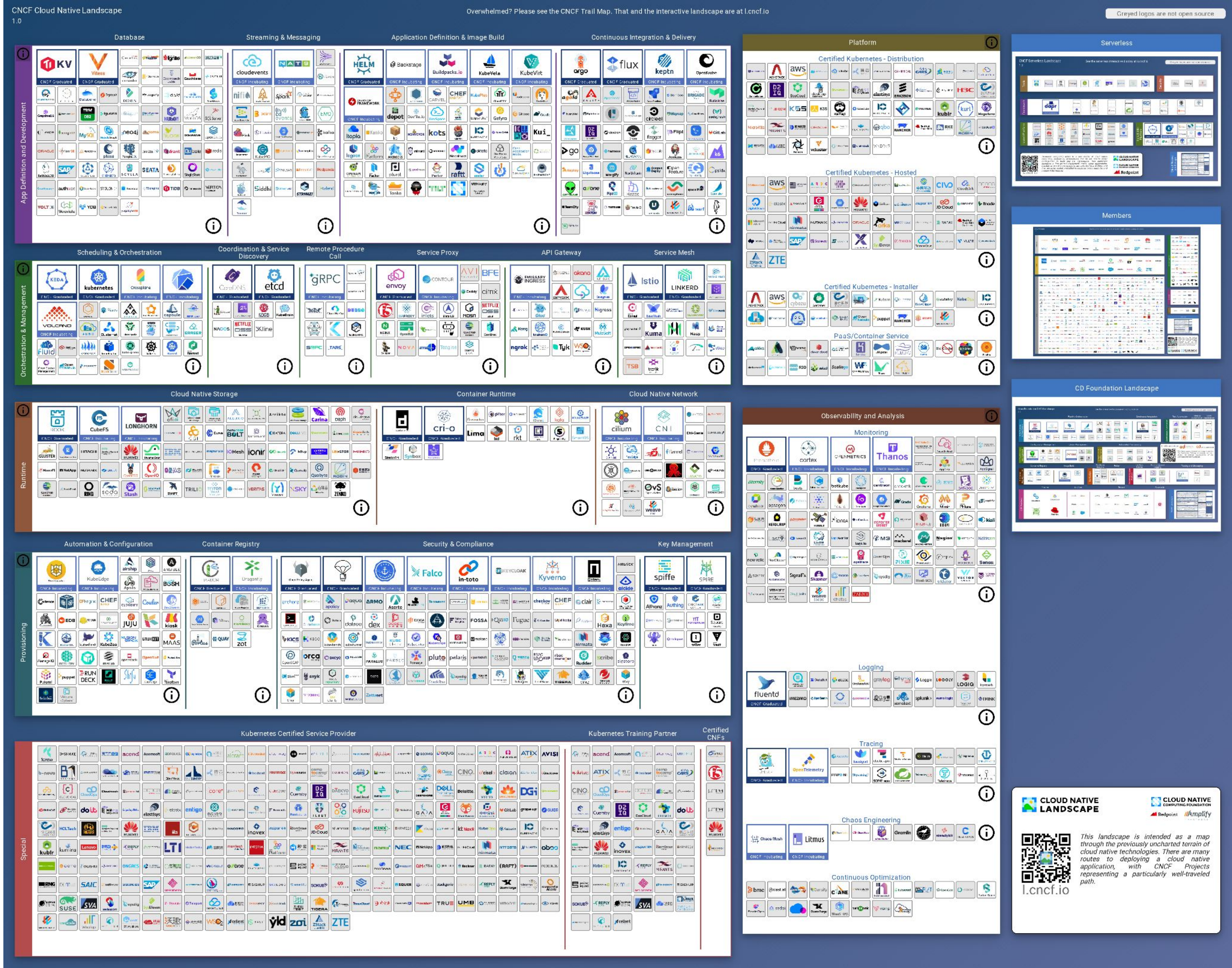


Experts in Linux & Open Source Solutions

Good Luck

Kubernetes Landscape

1245 options...


CNCF Cloud Native Landscape
1.0
Overwhelmed? Please see the CNCF Trail Map. That and the interactive landscape are at l.cncf.io
Greyed logos are not open source
App Definition and Development
Database
Streaming & Messaging
Application Definition & Image Build
Continuous Integration & Delivery
Orchestration & Management
Scheduling & Orchestration
Coordination & Service Discovery
Remote Procedure Call
Service Proxy
API Gateway
Service Mesh
Runtime
Cloud Native Storage
Container Runtime
Cloud Native Network
Provisioning
Automation & Configuration
Container Registry
Security & Compliance
Key Management
Special
Kubernetes Certified Service Provider
Kubernetes Training Partner
Certified CNFs
Platform
Certified Kubernetes - Distribution
Certified Kubernetes - Hosted
Certified Kubernetes - Installer
PaaS/Container Service
Observability and Analysis
Monitoring
Logging
Tracing
Chaos Engineering
Continuous Optimization
Serverless
Members
CD Foundation Landscape
CLOUD NATIVE LANDSCAPE
This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path.
l.cncf.io

Openshift, Kubernetes made easier

Chose wisely(!/?)

Red Hat chose and provides,
it's up to you whether you safely diverge...

Choose your poison:

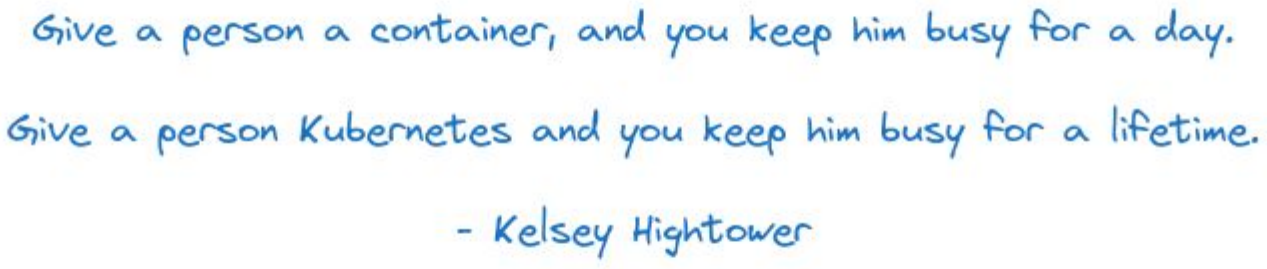
- Installer provisioned nodes
- User provisioned nodes

Upgrade with confidence

- Click (or press enter :)) and forget
- Sanity checking prior (and continuously) during operations

Install components (Operators)

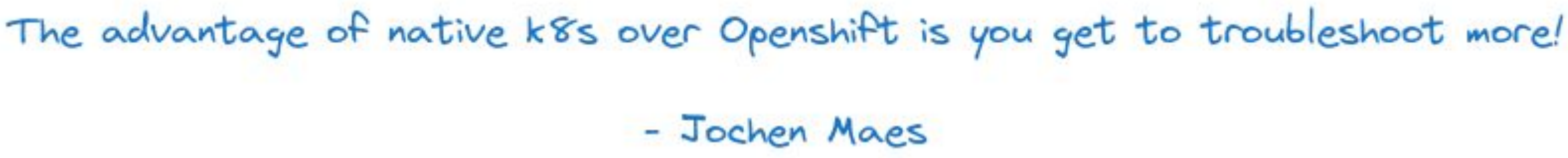
- Red Hat provided
- Vendor provided
- Make your own,...



Give a person a container, and you keep him busy for a day.

Give a person Kubernetes and you keep him busy for a lifetime.

- Kelsey Hightower



The advantage of native k8s over Openshift is you get to troubleshoot more!

- Jochen Maes

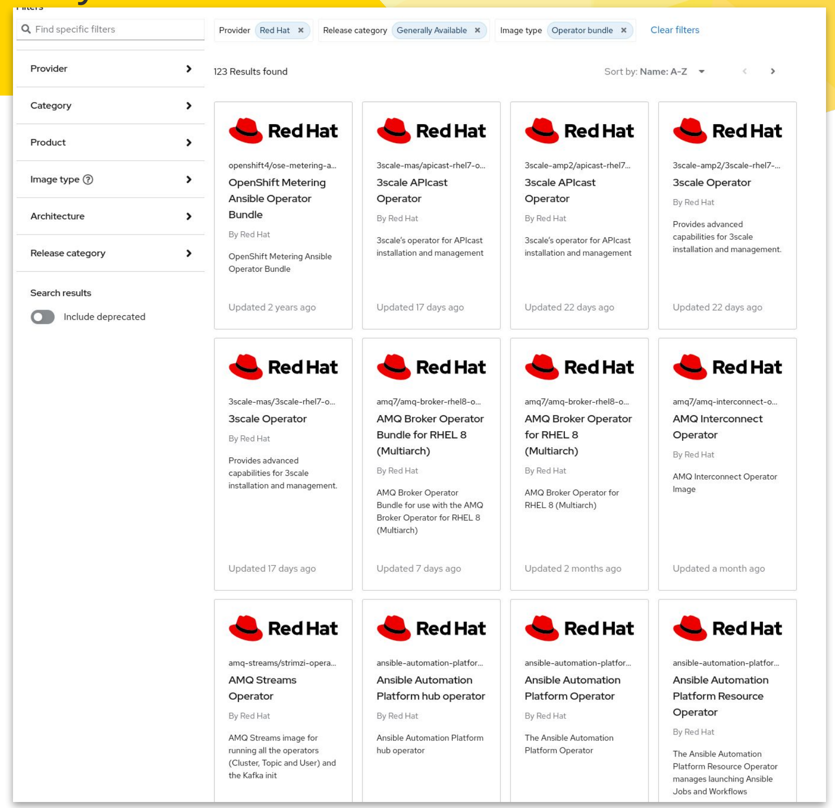
Opinionated but not limited…

Red Hat Operators

Chosen, implemented & certified by Red Hat

123 Red Hat provided operators

- ◇ Pick and choose, no exceptions
- ◇ Full landscape scope
- ◇ Trust the process and provider
- ◇ Simple to setup and maintain
- ◇ Choose from other providers if applicable.



Find specific filters

Provider Red Hat × Release category Generally Available × Image type Operator bundle × Clear filters

Provider ›
Category ›
Product ›
Image type ⓘ ›
Architecture ›
Release category ›

Search results

○ Include deprecated

123 Results found

Sort by: Name: A-Z ▾

openshift4/ose-metering-a...
OpenShift Metering Ansible Operator Bundle
By Red Hat
OpenShift Metering Ansible Operator Bundle
Updated 2 years ago

3scale-mas/apicast-rhel7-o...
3scale APIcast Operator
By Red Hat
3scale's operator for APIcast installation and management
Updated 17 days ago

3scale-amp2/apicast-rhel7...
3scale APIcast Operator
By Red Hat
3scale's operator for APIcast installation and management
Updated 22 days ago

3scale-amp2/3scale-rhel7-...
3scale Operator
By Red Hat
Provides advanced capabilities for 3scale installation and management.
Updated 22 days ago

3scale-mas/3scale-rhel7-o...
3scale Operator
By Red Hat
Provides advanced capabilities for 3scale installation and management.
Updated 17 days ago

amq7/amq-broker-rhel8-o...
AMQ Broker Operator Bundle for RHEL 8 (Multiarch)
By Red Hat
AMQ Broker Operator Bundle for use with the AMQ Broker Operator for RHEL 8 (Multiarch)
Updated 7 days ago

amq7/amq-broker-rhel8-o...
AMQ Broker Operator for RHEL 8 (Multiarch)
By Red Hat
AMQ Broker Operator for RHEL 8 (Multiarch)
Updated 2 months ago

amq7/amq-interconnect-o...
AMQ Interconnect Operator
By Red Hat
AMQ Interconnect Operator Image
Updated a month ago

amq-streams/strimzi-opera...
AMQ Streams Operator
By Red Hat
AMQ Streams image for running all the operators (Cluster, Topic and User) and the Kafka init

ansible-automation-platfor...
Ansible Automation Platform hub operator
By Red Hat
Ansible Automation Platform hub operator

ansible-automation-platfor...
Ansible Automation Platform Operator
By Red Hat
The Ansible Automation Platform Operator

ansible-automation-platfor...
Ansible Automation Platform Resource Operator
By Red Hat
The Ansible Automation Platform Resource Operator manages launching Ansible Jobs and Workflows

source: https://catalog.redhat.com/software/containers/search?build_categories_list=Operator%20bundle&p=1&release_categories=Generally%20Available&sort=sortTitle%20asc&vendor_name=Red%20Hat

Journey to k8s/cloud native

Good luck?

In depth knowledge is often not available at **customers** and **vendors**

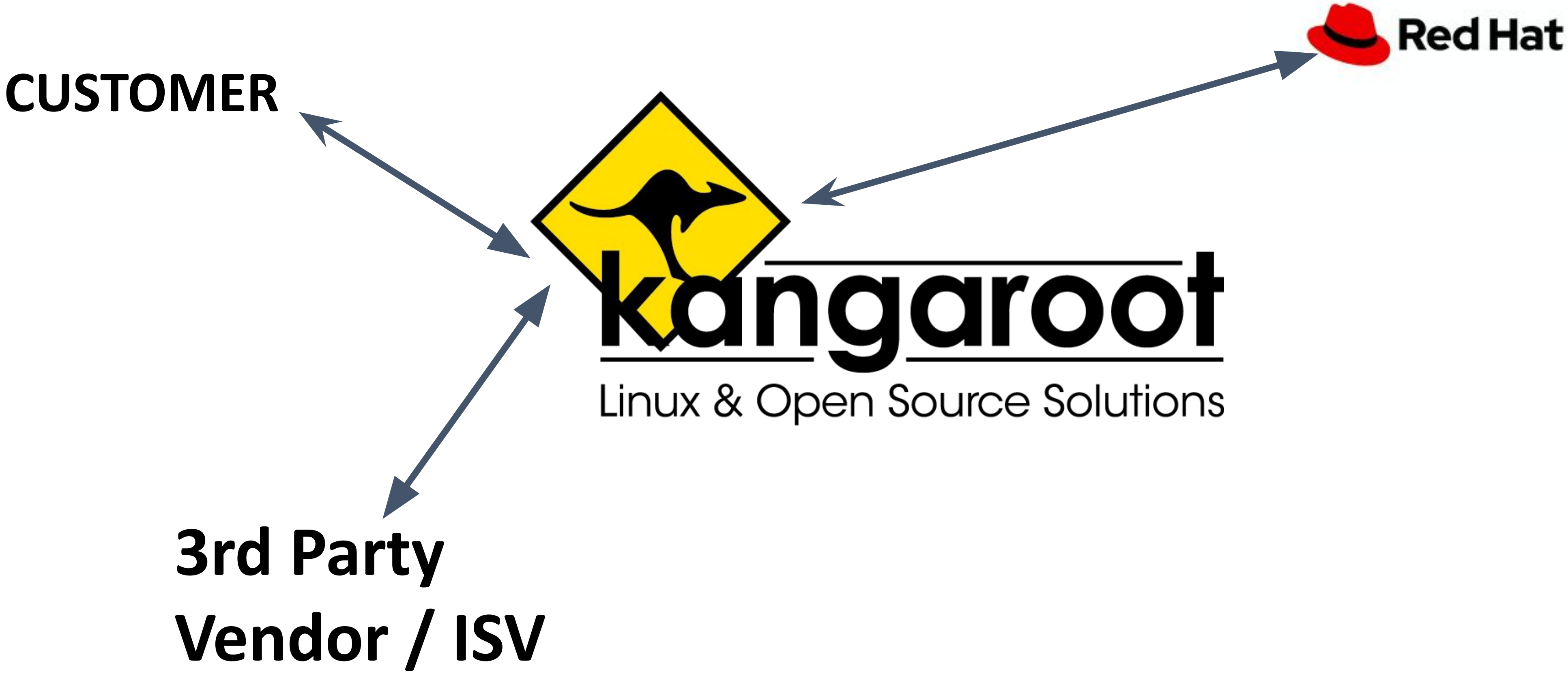
- ◇ Lift and shift pitfalls
- ◇ More low level knowledge of the stack is required
- ◇ Reshape the developers box

Why partners → experience, in-depth knowledge...

How we help customers

- ◇ Experience in different use cases and environments
- ◇ We know the partner landscape
- ◇ We can connect various Open Source projects
- ◇ And we work together with various 3rd party vendors/ISVs

Connect the stakeholders



CUSTOMER

3rd Party
Vendor / ISV

How we help

- Design & Implement
- Instruct the 3rd party Vendor/ISV on best practices

- 24/7 Support available
- Managed environments : ramp up your own team
- Bring experience to the table

Common application pitfalls

Lift & shift

◇ STDOUT, stop using logfiles

◇ Don't implement your own Loadbalancer/Reverse proxy, if possible.

◇ Understand the usage of your application

(maxHeapSize != mem requirements, use UseCGroupMemoryLimitForHeap)

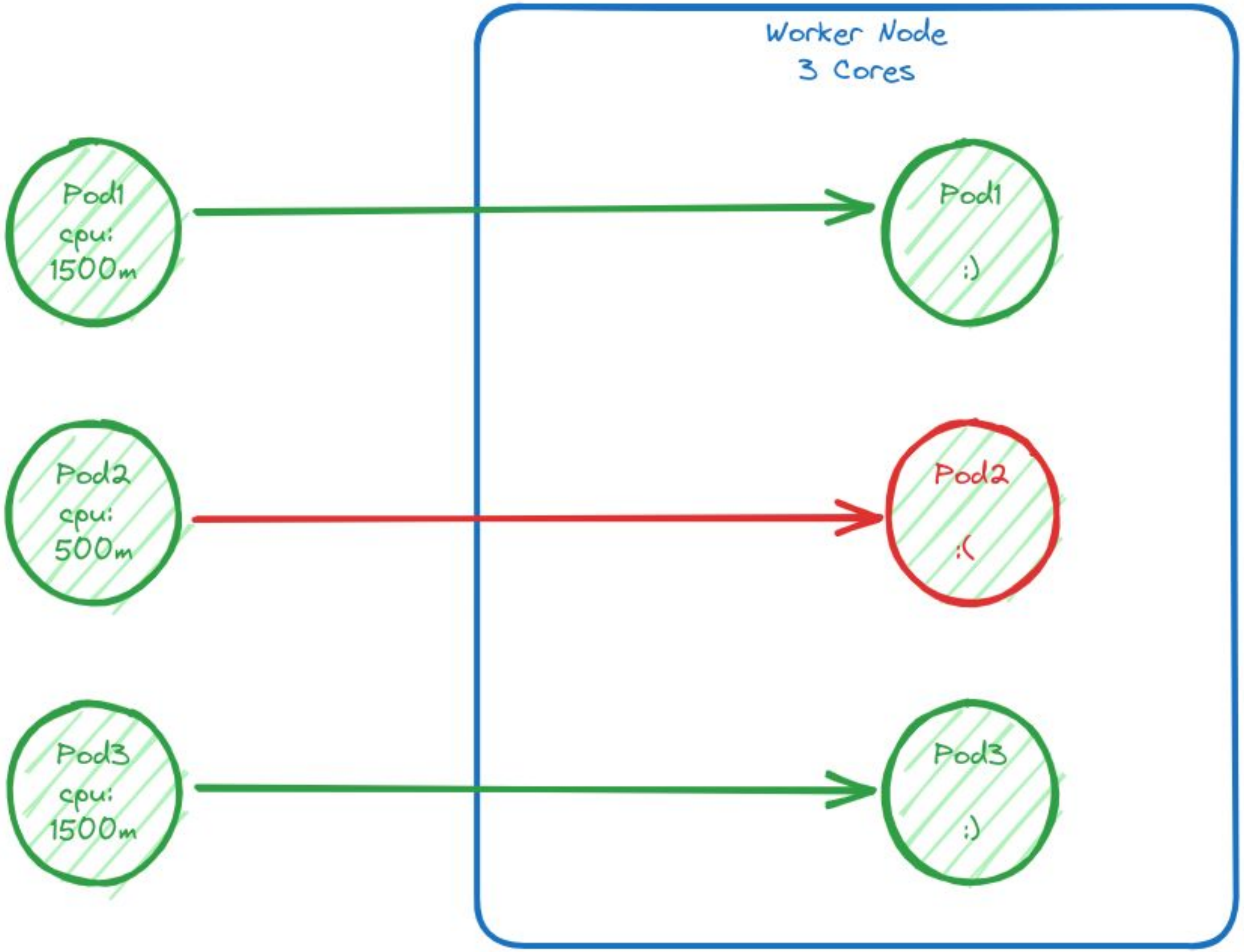
◇ Don't persists state!

◇ Think of disconnected installs!

Example: CPU Requests

Don't overcommit!

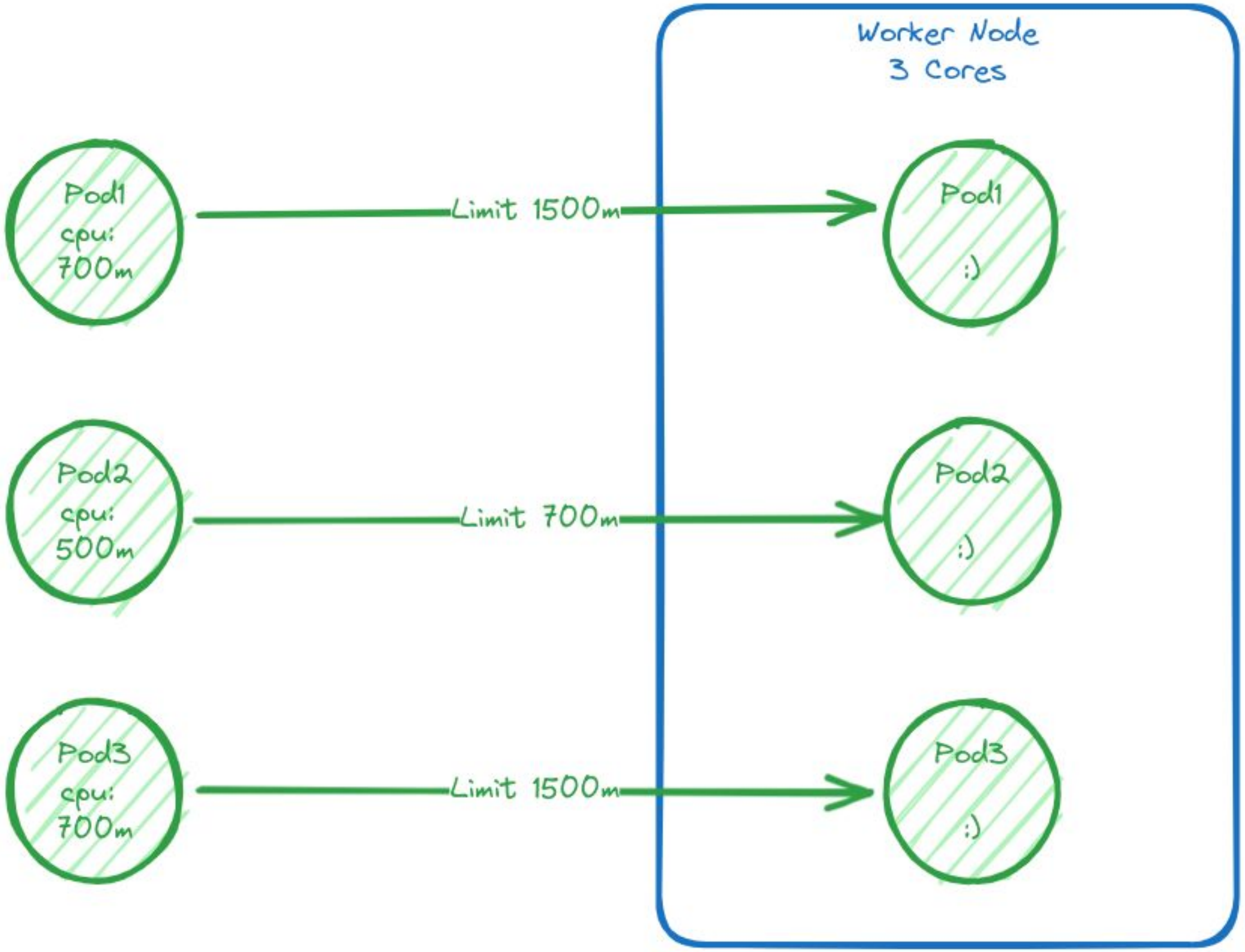
Your service start burst is not your MEAN!



Example: CPU Requests

Use limits but:

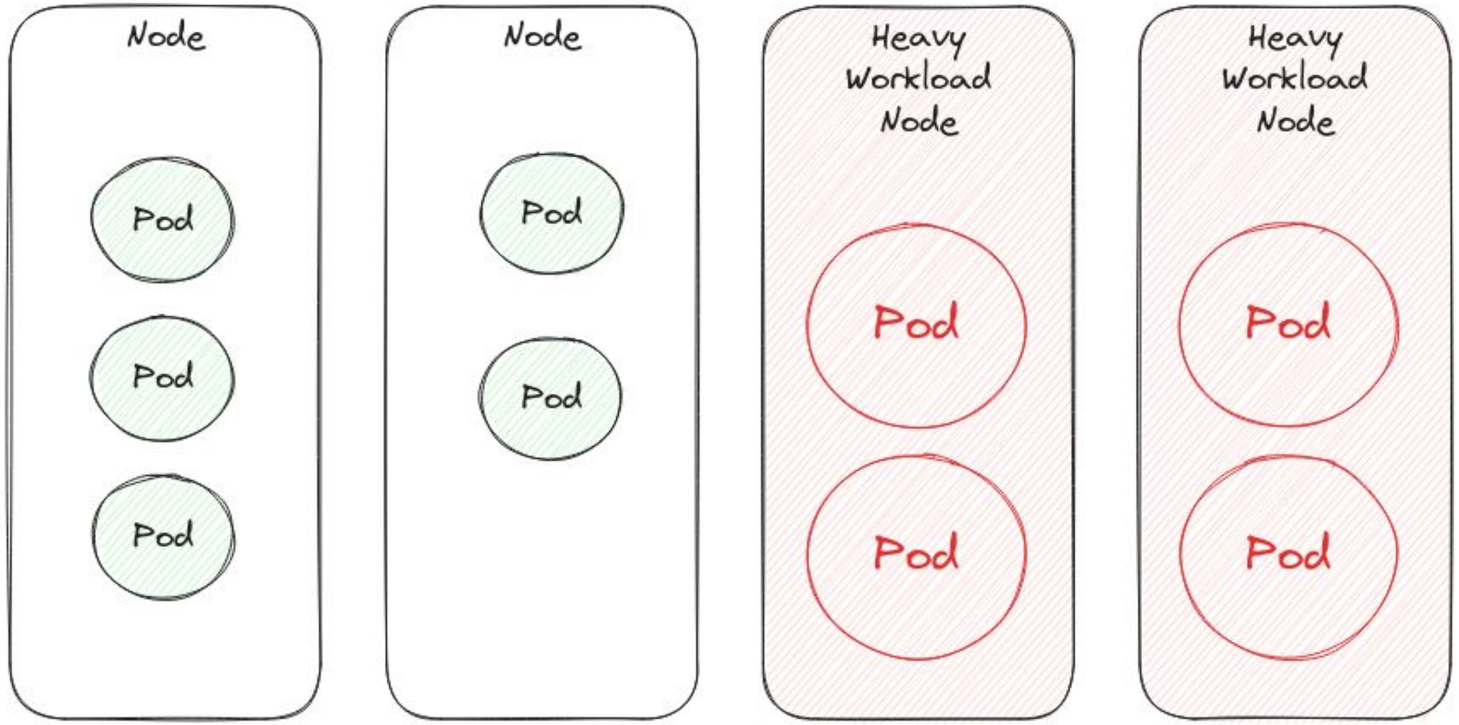
don't set limits without request!



Example: CPU Requests

Some services shouldn’t have limits!

Setup dedicated nodes.
Use node labels to assign.



But they still have requests.

Example: image:latest

Never use latest tags for containers
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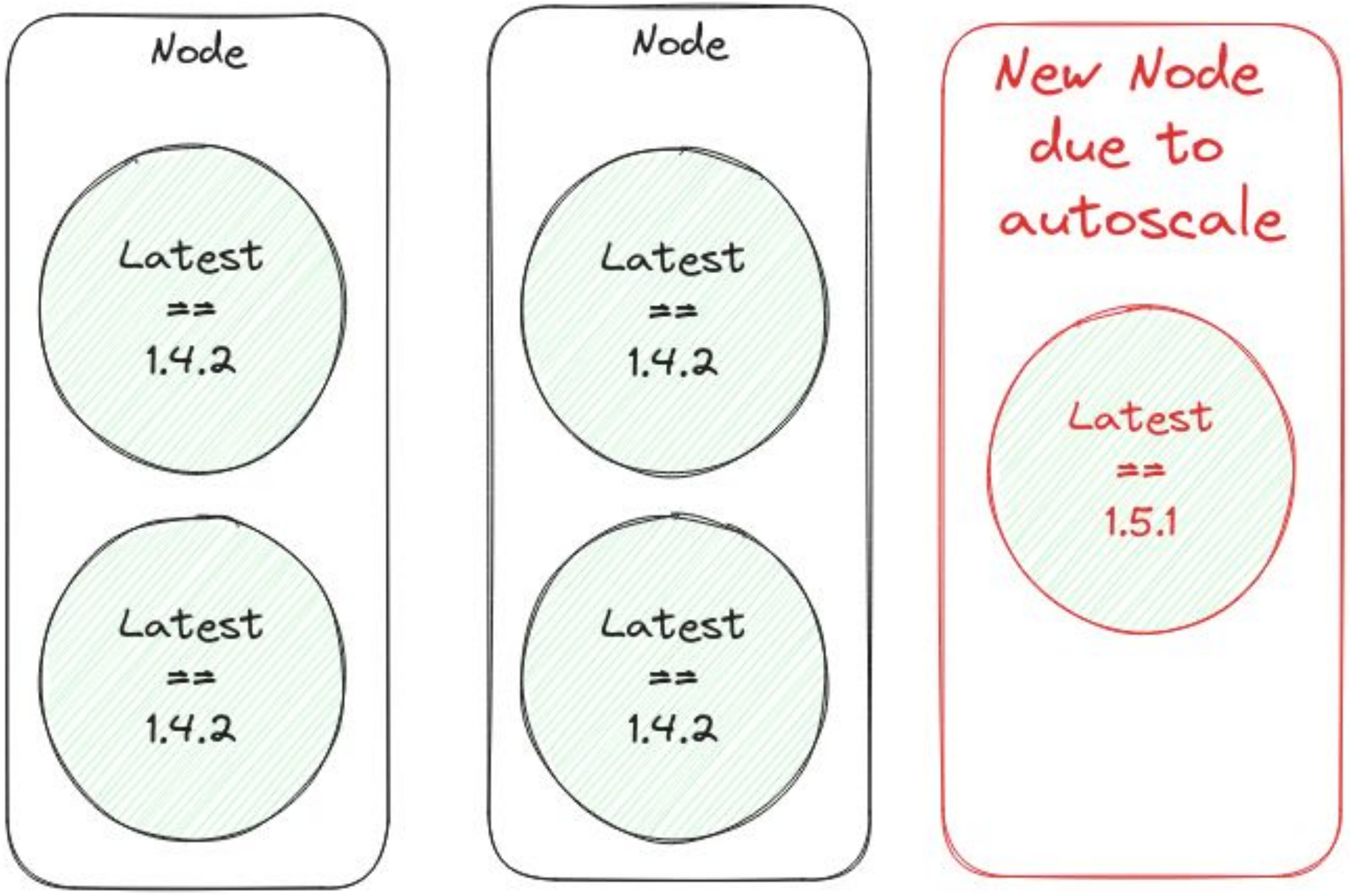

Experience as teacher

- StatefulSets vs Deployments.
- Startup, Ready, Live→ 3 probes, use them (wisely)!
- Node Eviction policies → use them, configure them!
- Watch etcd metrics like it's your baby!
- Don't rely on node backups → full gitops/automation
  - Really don't, you won't test them anyway :D
- If you have multiple regions/zone...
  - Scale so 1 region/zone can handle 80% of the full workload, lest you fail DR.
- Security is important, but there are cloud-native tools, your VM/bare-metal tool is NOT designed for Openshift.

source: Image by Huhabra: https://depositphotos.com/portfolio-5221833.html

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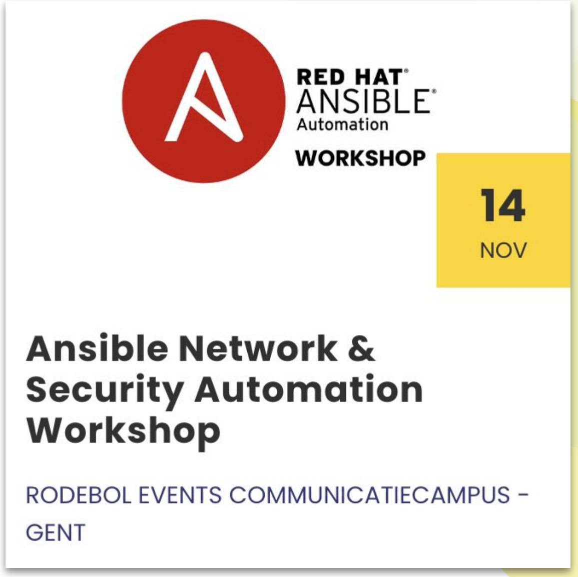

14 NOV

Ansible Network & Security Automation Workshop

RODEBOL EVENTS COMMUNICATIECAMPUS - GENT

28 NOV

EDB Lunch & Learn

KANGAROOT OFFICES

Questions?

kangaroot.net/events